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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,081	06/15/2006	Tadashi Ino	Q95054	9129

23373 7590 12/02/2009

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EXAMINER	
BOYLE, ROBERT C	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
12/02/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/583,081	INO ET AL.	
	Examiner	Art Unit	
	ROBERT C. BOYLE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 17-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 17-24* is/are rejected.

7)☒ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/17/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 17, 2009 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Claims 1-24 are pending.

3. Any rejections stated in the previous Office Action and not repeated below are withdrawn.

Claim Objections

4. Claim 20 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 20 depends from claim 13, which is cancelled.

Claim Rejections - 35 USC § 103

5. Claims 1-5, 7-8, 17-21, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Curtin** (US 6,150,426) in view of **Schreyer** (US 3,085,083) as evidenced by the definition of "elecrolyte", Hawley's Condensed Chemical Dictionary, 14th Edition, 2002.

6. As to claim 1, Curtin teaches a sulfonated fluoropolymer, that are used in membranes, with a SO_3M group where M can be Na (col. 1, ln. 15-22; col. 3, ln. 57-col. 4, ln. 43; col. 9, ln. 65-col. 10, ln. 5). A membrane of a sulfonated fluoropolymer is an electrolyte membrane because polymers of perluorinated sulfonic acid are electrolytes as evidence by the definition of 'electrolyte' provided.

7. Curtin does not teach $-CF_2H$ endgroups.

8. Schreyer teaches the formation of fluoropolymers with $-CF_2H$ endgroups (col. 2, ln. 60-67). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the fluoropolymer in Curtin with the endgroups taught in Schreyer because terminating the polymer in a $-CF_2H$ endgroup adds to the thermal stability and corrosion resistance of the polymer (Schreyer: col. 1-2, ln. 69-24).

9. As to claim 2, Schreyer teaches the fluoropolymer having $-CF_2O_2X$ at the chain terminals, which are heat treated to yield $-CF_2H$ endgroups (col. 2, ln. 28-67).

10. As to claim 3, Curtin teaches the acid salt group is a sulfonic acid group (col. 3, ln. 57-col. 4, ln. 43).

11. As to claim 4, Schreyer teaches heating the fluoropolymer above 200°C (col. 3, ln. 67-71). Curtin teaches a membrane of a copolymer having units derived from a formula disclosed in claim 4 (col. 1, ln. 15-22; col. 3, ln. 57-col. 4, ln. 43, col. 9, ln. 14-33).

12. As to claim 5, Schreyer teaches heating the polymer in the presence of water with temperatures between 200°C to 400°C (col. 2, ln. 14-21). This overlaps the claimed range. It is well settled that where prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie

case of obviousness is established. See MPEP 2144.05; *In re Harris*, 409, F3.d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 3d 1379, 1382 (Fed. Cir 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

13. As to claim 7, Curtin teaches the fluoropolymer precursor is a copolymer (col. 4, ln. 36-43).

14. As to claim 8, Curtin teaches these structural limitations (col. 3, ln. 57-col. 4, ln. 43).

15. As to claims 17, 21, Curtin teaches that the polymer can be used in fuel cells, membranes and in electrolytic cells (col. 9, ln. 27-33).

16. As to claim 18, Curtin teaches compositions with sulfonated fluoropolymer used in membranes, with a SO_3M group where M can be Na (col. 1, ln. 15-22; col. 3, ln. 57-col. 4, ln. 43; col. 9, ln. 65-col. 10, ln. 5), dispersed with catalysts (col. 9, ln. 27-33).

17. Curtin does not teach $-CF_2H$ endgroups.

18. Schreyer teaches the formation of fluoropolymers with $-CF_2H$ endgroups (col. 2, ln. 60-67). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the fluoropolymer in Curtin with the endgroups taught in Schreyer because terminating the polymer in a $-CF_2H$ endgroup adds to the thermal stability and corrosion resistance of the polymer (Schreyer: col. 1-2, ln. 69-24).

19. As to claim 19, Schreyer teaches the fluoropolymer having $-CF_2O_2X$ at the chain terminals, which are heat treated to yield $-CF_2H$ endgroups (col. 2, ln. 28-67).

20. As to claim 20, Curtin teaches the acid salt group is a sulfonic acid group (col. 3, ln. 57-col. 4, ln. 43).

21. As to claims 23-24, Curtin teaches that the polymer can be used in membranes and in electrolytic cells (col. 9, ln. 27-33) and that the polymer can be used in fuel cells, membranes, and in electrolytic cells (col. 9, ln. 27-33).

22. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Curtin** (US 6,150,426) in view of **Schreyer** (US 3,085,083) and **Terazo** (US 2002/0009626) as evidenced by the definition of "elecrolyte", Hawley's Condensed Chemical Dictionary, 14th Edition, 2002. The discussion with respect to Curtin and Schreyer as set forth in paragraphs 5-21 above is incorporated here by reference.

23. As to claim 22, Curtin teaches a sulfonated fluoropolymer, that are used in membranes, with a SO_3M group where M can be Na (col. 1, ln. 15-22; col. 3, ln. 57-col. 4, ln. 43; col. 9, ln. 65-col. 10, ln. 5). Schreyer teaches the formation of fluoropolymers with $-CF_2H$ endgroups (col. 2, ln. 60-67). Curtin does not teach using a platinum catalyst.

24. Terazo teaches using platinum catalysts with ion exchange membranes (abstract; ¶2-8). It would have been obvious to use a platinum catalyst because when platinum is used, the stability and activity as the electrode catalyst can be further imparted and platinum is highly active for the oxidation reaction of hydrogen at the anode and the reduction of oxygen at the cathode (Terazo: ¶ 26).

25. Claims 1-8, 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tatemoto** (WO 2004/018527) in view of **Schreyer** (US 3,085,083). As the cited WO publication is in a non-English language, the English equivalent, US 2005/0228127 ("Tatemoto"), has been

utilized in place of WO '527. All column and line number citations are made with respect to the above mentioned U.S. document.

26. As to claim 1, Tatemoto teaches a electrolyte membrane of a fluoropolymer with a SO_3M group where M can be a group 1 metal (abstract; ¶ 4, 15-24, 34, 200-202). Tatemoto does not teach $-CF_2H$ endgroups.

27. Schreyer teaches the formation of fluoropolymers with $-CF_2H$ endgroups (col. 2, ln. 60-67). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the fluoropolymer in Tatemoto with the endgroups taught in Schreyer because terminating the polymer in a $-CF_2H$ endgroup adds to the thermal stability and corrosion resistance of the polymer, see Schreyer, columns 1-2, lines 69-24. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made.

28. As to claim 2, Schreyer teaches the fluoropolymer having –CF2O2X at the chain terminals, which are heat treated to yield $-CF_2H$ endgroups (col. 2, ln. 28-67).

29. As to claim 3, Tatemoto teaches the acid salt group is a sulfonic acid group (¶ 138-139).

30. As to claim 4, Schreyer teaches heating the fluoropolymer above 200°C (col. 3, ln. 67-71). Tatemoto teaches a membrane of a fluoropolymer having units derived from a formula disclosed in claim 4 (¶4, 15-24, 34, 138-139).

31. As to claim 5, Schreyer teaches heating the polymer in the presence of water with temperatures between 200°C to 400°C (col. 2, ln. 14-21).

32. This overlaps the claimed range. It is well settled that where prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the

claimed concentrations a prima facie case of obviousness is established. See MPEP 2144.05; *In re Harris*, 409, F3.d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 3d 1379, 1382 (Fed. Cir 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

33. As to claim 6, Tatemoto teaches boiling water away from a fluoropolymer in the presence of methylpyrrolidone (¶ 181).

34. As to claim 7, Tatemoto teaches the fluoropolymer precursor is a copolymer (¶ 138-139, 146).

35. As to claim 8, Tatemoto teaches the claimed structural details (¶ 138-139).

36. As to claim 17, Tatemoto teaches a fuel cell comprising the membrane electrode of claim 11 (¶ 2-3; 36-37).

37. As to claims 18-20, Tatemoto teaches immobilized active substance material of a fluoropolymer having SO_3M groups where M can be a group 1 metal (abstract; ¶ 4, 15-24, 32-35, 200-202). Tatemoto does not teach $-CF_2H$ endgroups.

38. Schreyer teaches the formation of fluoropolymers with $-CF_2H$ endgroups (col. 2, ln. 60-67). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the fluoropolymer in Tatemoto with the endgroups taught in Schreyer because terminating the polymer in a $-CF_2H$ endgroup adds to the thermal stability and corrosion resistance of the polymer (Schreyer: col. 1, ln. 69-col. 2, ln. 24). Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made.

39. As to claims 21-22, Tatemoto teaches the active material is a platinum catalyst (¶ 194-196).

40. As to claims 23-24, Tatemoto teaches the material is used in a fuel cell and membrane electrodes (¶ 2-3, 36-37, 52-53, 194-202).

Response to Arguments

41. Applicant's arguments filed 9/17/2009 have been fully considered but they are not persuasive.

42. Applicant argues that electrolyte membranes and immobilized active substance materials require stability against OH radicals and Schreyer does not teach resistance against OH radicals. This is not persuasive.

43. As discussed above, Curtin teaches membranes made from sulfonated fluoropolymers, which are electrolytes as evidenced by the definition of "electrolyte" provided, and material having active substances (see above ¶5-21). Because of this, the membranes made by the sulfonated fluoropolymers taught by Curtin are electrolyte membranes.

44. Tatemoto teaches electrolyte membranes and material having active substances (see above ¶ 25-40).

45. Furthermore, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., resistance against OH radical) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

46. Also, while Schreyer does not disclose all the features of the present claimed invention, Schreyer is used as a teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, MPEP 2145; *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973); *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, and in combination with the primary reference, discloses the presently claimed invention.

47. Therefore, Applicant's arguments are not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is (571)270-7347. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT C BOYLE/
Examiner, Art Unit 1796

/Vasu Jagannathan/
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